REPORT

OF THE

Committee on Internal Improvement,

TO THE

HOUSE OF DELEGATES,

RELATIVE TO THE

CANAL AND RAIL ROAD COMPANIES.

MR. MERRICK, Chairman.

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REPORT

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The committee on Internal Improvements has been charged with the consideration of the memorial of the Chesapeake and Ohio Canal Company; The memorial of the Baltimore and Ohio Rail Road Company, opposed to certain statements therein contained; numerous memorials praying that no additional right to sell water power may be granted to the Canal Company, and others invoking the Legislature to use means to compel the Canal Company to permit the construction of the Rail Road, through the narrow passes of the Potomac from the Point of rocks to Harper's Ferry; and finding these subjects closely interwoven together, submit as the result of their deliberations upon them, the following report:

The attention of the committee was first by the magnitude of the interests concerned, as well as by the order of the House of the 11th ultimo, drawn to the difficulties existing between the two great works, the Canal and Rail Road, by which the progress of the latter work has been interrupted. The better to understand these difficulties, and to ascertain whether it yet be possible to remove them, the ground has been visited and carefully observed from the Point of Rocks to Harper's Ferry, and the committee is under the full conviction, that even now, at no unreasonable sacrifice of the interest, convenience or public utility of the Canal, effect may be given to both the grants of Maryland, by affording to the Rail Road on the land side of the Canal, a passage through the difficult passes mentioned; and whatever sacrifice shall be required of the Canal Company to produce that result, while your committee rejoices that it cannot be great, it finds further consolation in the knowledge that such sacrifice has been rendered necessary by the voluntary and uncontrolled acts of the Canal Company itself.

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It was in full proof in the cause lately decided between the two companies, upon the evidence of competent men, the engineers of both, that through those passes there was sufficient room to conduct both works, allowing to each its full capacity, that is to say, to the rail road a breadth of thirty feet, and to the canal a breadth of fifty-six feet three inches, with its full cross section of 306 feet.

The canal company was fully apprised of the deep interest felt by the State of Maryland in the Baltimore and Ohio rail road; a work terminating in her commercial emporium, and a work towards which, the State had contributed half a million of dollars, while her citizens had devoted to it three millions and a half more. The Canal Company was aware that under such circumstances, the State of Maryland had by a solemn resolution of her Legislature, earnestly recommended to it such a course of proceeding as would have allowed a work, strictly, a Maryland enterprize, to pass over a small portion of her own territory. Yet with all this knowledge, the Chesapeak and Ohio Canal Company has chosen to depart from previous locations, and to jam the canal close against the hills, so that the passage of the rail road, beyond the point at which it is now barred up, is rendered morally if not physically impracticable, unless by a sacrifice of a small portion of the redundant advantages which the Canal Company holds but by the bounty of Maryland.

By this disregard of the expressed wish of the State, by using to oppress and destroy the interest of her people, powers generously granted by the State, aware as she was, that their beneficial results would chiefly enlarge and enrich communities without her borders, it is the opinion of your committee, which they shrink not from decidedly expressing, that the Chesapeake and Ohio Canal Company has no claim to the favourable consideration of the Legislature and people of Maryland. That the State owes it to its own character and to the interests of her people to prevent, as far as her generosity may have left her the power prevent the abuse of privileges granted by her; and that without seeking to recall what she has done, it would be a violation of duty, did she not now set bounds to the Chesapeake and Ohio Canal Company and use all the means in her power to teach that Company, and all other corporations that they may not safely defy the sovereign authority.

The question then arises, what power can the State

bring to bear upon the corporation which has proved thus regardless of her wishes?

Though chiefly negative, your committee think that power neither questionable nor small.

The Chesapeake and Ohio Canal Company has laid before the Legislature of Maryland, an application for further pecuniary aid. Under any circumstances, it is probable that it would be thought that Maryland had already made sufficient contribution to a work which, though passing over her territory, is in its operation expected, principally to promote the growth and prosperity of the District of Columbia; but after the course pursued in regard to the resolution of the last General Assembly, the application must be considered as still more unreasonable. The committee will say no more on that head, being persuaded that the Chesapeake and Ohio Canal Company itself can have no expectation of a further grant of money from the State of Maryland.

Upon the subject of extending the privilege of selling surplus water, to the Canal Company, the committee will not speak in this connexon, believing that privilege to be one, which on higher grounds than mere expediency, the state could not, if it would, and ought not if it could grant away. It shall be presently but seperately discussed.

The Chesapeake and Ohio Canal Company in the same memorial, speaks of the 10th of October next, as the expiration of the 5th year from the commencement of their work, and repeatedly informs the Legislature that it does *not* ask, nay, has expressly determined that it will *not* ask, an extension of the period of five years limited in the charter for the completion of one hundred miles of their canal, alleging that by operation of law without the aid of the Legislature, they are entitled to the further term of three and a half years. These assertions require to be noticed, lest the silence of the Legislature should hereafter be insisted on as evidence of consent.

Your committee understands it to be matter of public notoriety, that the work was formally and legally commenced on the fourth day of July 1828, and were proof of the fact wanted, think it may be found abundantly in the first report of the canal company; consequently the term of five years will expire on the fourth day of July next, and whether the legal delay will exempt the company from the operation of the limitation in their charter, is a legal question, of which your committee would advise a reference to the

Attorney General, with instructions to have it adjudged. The canal company either posseses the legal right in question, or it does not, if it does, the courts will so decide; if it does not, although other measures on their part, would doubtless have left the Legislature of Maryland, no disposition to deal strictly; at present your committee deem the State under no obligation to shew favour to the Chesapeake and Ohio Canal Company.

Again, the charter of the Chesapeake and Ohio Canal Company gives it no authority to draw from the river or other streams, water with any view other than the improvement of the navigation, and expressly declares (sec. 16.) that in *no situation whatever* other than where wastes shall be essential to the security of the Canal, shall waste water be sold along its line; yet your committee understand it to have been admitted in the Chancery court, in the case of Binney against the Chesapeake and Ohio Canal Company, in the answer of that company and elsewhere, that a large quantity of water had been drawn off from the river and conducted into Georgetown, over and above what was wanted for navigation, contrary to the plain inhibition of the charter, *with a view to future authority*, to apply it to other uses.

Your committee has even been informed that large mills have been established in the district of Columbia, propelled by water drawn from the canal, in anticipation of the grant of such future authority. A memorial of a certain Patrick O'Byrne has been referred to your committee, complaining that the Chesapeake and Ohio canal company, have not only not kept the river in a proper state for navigation, as it is required to do by the 13th section of the charter, but has actually obstructed the navigation, and yet exacts from him tolls "oppressive, unjust and iniquitous."

It is further said that the Chesapeake and Ohio canal company have indirectly by the intervention of trustees purchased lands, which directly, under the charter they had no power or right to do.

These are subjects for grave inquiry; involving matters of fact, which your committee has not time nor means to investigate, and yet which ought to be investigated—your committee therefore recommend the passage of a resolution authorising the governor to appoint a suitable person or persons to collect the necessary testimony, and if the facts proved shall justify the proceeding, to co-operate with the Attorney General in such legal measures as will lead to the

abrogation of the charter; and another, directing the treasurer of the western shore, upon being notified by the Attorney General, that process is about to be instituted for that purpose, to withhold payment of the residue of the subscription of this state, until the end of the next session of the general assembly.

Upon a careful review of the depositions taken by your committee and herewith submitted, to wit: of Thomas F. Purcell, and Alfred Cruger, Engineers, of the Chesapeake and Ohio canal; and of Jonathan Knight, Engineer, and Casper W. Weaver, superintendant of the Baltimore and Ohio Rail Road, together with their own examination of the localities; the committee has attained the full conviction that fifteen feet of the breadth of the canal on the land side may be given up to the Rail Road company in the difficult passes (which are four in number, and amount in all to no more than two miles and one tenth of a mile in length,) and yet leave for the canal without removning (except in one or two places, if any, and for very short distances,) the exterior wall and tow path, a breadth throughout of thirty-five feet, its full depth and a cross section fifty per cent greater than that of the great Erie canal. Such dimensions are manifestly more than sufficient to permit the passage of two boats whose breadth can never exceed that of the lock chamber, that is to say fifteen feet. The fifteen feet so given up, together with five feet of additional excavation on the rocky hill sides, will afford a passage sufficient for the Rail Road. The mode by which these results could be obtained is clearly pointed out in the answer of Jonathan Knight, to the fourth interrogatory propounded to him by the committee. It is thought to be essential to the beneficial existence of the Rail Road, that this concession should be extended to it, and it appears to your committee to be required alike by the honor and interest of the state, and the welfare of her people.

Your committee yet indulge the hope that upon mature deliberation, the Chesapeake and Ohio canal company, will perceive that its own best interests, require the concession to be made, and desirous that no injury shall befall that company which can be avoided, recommend the passage of a resolution providing, that if on or before the first day of April next, the Chesapeake and Ohio canal company shall by its solemn corporate act, certify to the governor its consent that the Rail Road shall be constructed from the point of rocks, to Harper's Ferry, on the land side of the said

canal, and thence across the said canal, to the state of Virginia, upon the following terms and conditions, then the said Chesapeake and Ohio canal company, shall be allowed further time, to wit, until the 4th day of July 1835, to complete the first hundred miles of their canal, the several investigations and proceedings herein before recommended concerning the expiration or forfeiture of their charter shall be stopped, and the state subscription be paid up in the mode heretofore provided. The terms proposed by your committee have been framed with a view to gratify the wish of the state for the extension of the Rail Road, with the least possible detriment or inconvenience to the canal, and are these.

1. That the Rail Road company shall be allowed to hold and occupy fifteen feet of the breadth of the canal as at present located, on the land side thereof, at all the narrow and difficult passes between the point of rocks and Harpers' Ferry, not exceeding all together two miles and one tenth in length.

2d. That for the purpose of obtaining suitable and proper curves for the Rail Road, the canal, its tow-path and walls shall be removed further from the bank, if such removal shall be found necessary, and the said Rail Road shall be allowed to pass by a viaduct across the said Canal at Harpers Ferry.

3d. That in those parts of the Canal in which its width shall be thus contracted, the partition wall shall be constructed by and at the expense of the Baltimore and Ohio Rail Road Company, and also a wall on the corresponding portions of the side of the Canal next the tow-path, with a slope of one foot horizontal to four feet vertical.

4th. That should any portion of the tow-path and wall of the Canal be removed in pursuance of these articles, such removal and the reconstruction thereof, shall be made by and at the expence of the Baltimore and Ohio Rail Road Company.

5th. That should the Canal be finished in those places between the Point of Rocks and Harpers' Ferry, at which the two works will not be in collision, and be kept out of use by the operations, neglect or delay of the Rail Road Company in excavating or graduating their road or by any default of the said Rail Road Company, the said Baltimore and Ohio Rail Road Company shall pay and make good the consequent loss to the Chesapeake and Ohio Canal Company, and the amount so to be paid, shall be ascertain-

ed by the amount of profit realized by the said Chesapeake and Ohio Canal Company from the tolls it shall receive on articles transported through that part of the Canal, during the same period in the following year.

6th. The Rail Road Company shall provide convenient crossing places over the Rail Road, so as to permit the free and uninterrupted access of persons and produce to the Canal, along the line between the Point of Rocks and Harpers' Ferry.

7th. That it shall be fairly and expressly understood, that the Baltimore and Ohio Rail Road Company shall not at any time hereafter occupy or seek to occupy, the ravine of the Potomac on the Maryland side, at any place above Harper's Ferry, while the same shall be occupied or liable to be occupied by the Chesapeake and Ohio Canal Company.

8th. That Alfred Cruger and Jonathan Knight, shall act as arbitrators under oath or affimation to deal impartially and to arange a plan of operations conformably to the spirit of these articles, and in their judgment best calculated to prevent loss or injury to either company, and that their joint decision shall be binding and obligatory upon both companies—a vacancy occurring by the death of either of these to be supplied by another appointment to be made by that company in whose employment the person so dying now is.

9th. That in the event of a disagreeement between them in any matter arising under these articles, they shall have power to appoint a discreet, competent and disinterested person as umpire, whose decision shall be final touching such matter.

The committee has the honor to submit to the the house, a series of resolutions in conformity to the views above expressed.

In regard to the application made by the Chesapeake and Ohio Canal Company for permission to sell water for manufacturing purposes along the line of the Canal, the perseverance with which it is year after year urged upon the legislature, renders it proper that the committee should express their views clearly.

In the act of 1784, chapter 33, which is the charter of the Old Potomac Company, whose rights have been transferred to the present Chesapeake and Ohio Canal Company, it is plainly declared, in the thirteenth section, "that it is not the intention of that act to interfere with private property, but for the purpose of improving and perfect-

ing the navigation," and therefore it was enacted, that the water or any part of it, conveyed through any canal, should not be used for any purpose but navigation; unless by consent of the proprietor of the land."

By the act of 1785, chapter 1, it was enacted, that the River Potomac should be considered as a *common highway* for the purpose of navigation and commerce to the citizens of Virgina and Maryland and of the United States, &c., and that the citizens of Maryland and Virginia, should have full property in the shores of the Potomac River adjoining their lands, with all emoluments and advantages thereunto belonging, so as not to obstruct or injure the navigation of the river. It has been well argued, that the act last quoted, which was the compact of the States of Maryland and Virginia, had relation solely to the tide water or waters, technically navigable, mentioned therein and it has been considered and solemnly declared by the Chancellor of Maryland, in the case of Binney vs. the Chesapeake and Ohio Canal Company, that above tide water, the jurisdiction and soil of the whole of the river still belong exclusively to this State agreeably to the charter. This view however, is waived, as unnecessary in this examination.

In the 16th section of the charter of the Chesapeake and Ohio Canal Company, (1824 ch. 78,) permission was given "whenever wastes shall be *essential to the security of the Canal, and in no other situation* whatever to dispose of or sell waste water."

In the session of 1829, the Legislature of Maryland was memorialised by the Chesapeake and Ohio Canal Company, on the subject at present under consideration. The report of the Committee to which their Memorial was referred, which well merits examination and respect in relation to all the topics discused in it, and may be found in the Journal of the House of Delegates 1829, pages 384, 385 and 386, contains the following decided answer. "In addition to the above, they ask permission to sell or let for prescribed manufacturing uses, any surplus water which they may conduct by feeders into the Canal for that purpose. Such an exercise of power, not only not essential; for the purposes of the association but far beyond the pale of the objects for which the Company was incorporated, might also militate against individual rights. The right of property in the water power of the Potomac, and its tributary streams is in individuals, of which they cannot be justly divested, unless indeed called for by the imperious neces-

sity of the public weal. The Company already have the right of the availment of any water power which may be necessary for the purposes of the Canal, as also the power expressly granted by the charter, of disposing of, for machinery, all waste water which may be essential for its security. No additional powers, therefore upon this subject appear to be necessary for the true obiects of the corporation."

Notwithstanding this decisive refusal, the same application was renewed at December session, 1830. The report of the Committee thereon may be found in the printed journal of that session, pages 335, 336 and 337. It is argumentative, and again in the most decided terms repels the proposition as wholly inadmissable. The following remarks are extracted for the purpose of bringing the whole action of the State upon the subject together. "The prayers of the Chesapeake and Ohio Canal Company seem to your committee to be at variance with the interests of individuals who are already in the possession of rights that such grants would either destroy or greatly impair; a power which your committee believe the Legislature of Maryland never intended to confer, and an interference directly opposed to the policy hitherto pursued by that Legislature.—The powers, privileges and rights of incorporated companies are usually so expressed as to be easy of interpretation whenever such institutions are created; but as doubts have been suggested elsewhere, we deem it due to all who may be interested to be explicit. This is distinctly a charter to improve a navigation, and we cannot perceive in either this charter or that of the Old Potomac Company, the benefits of which enure to this Company,other intentions on the part of the Legislatures which granted them, except the provision *made for the benefit of proprietors of water powers*, in section 13, of the Potomac company's charter, passed 1784. The Legislature of Maryland at no time intended to authorise the Chesapeake and Ohio Canal Company to draw off the waters of the Potomac river or of its tributaries for the purpose of creating water power for mills or Manufactories. The use of those streams was permitted for the purpose of creating an improved navigation, and a right was given to use or dispose of *surplus or waste water*, but no more, (1824 ch. 79, sec. 16,) "except as provided in the 13th section, alluded to" (Charter of the Potomac Company.) "The committee would deem it impolitic if it were not otherwise wrong, to encourage the making of establishments which might subject the Company to the temp-

tation of endeavoring, by an unfair and unequal system, as by charging a lower rate of tolls on the raw than on the manufactured articles, to draw custom to their works, to the injury of other previously existing manufacturing establishments, &c."

To this report was appended a resolution which was adopted by both branches of the Legislature, and which was intended, and should have full force and effect, as an act declaratory of the sense in which the charter of the Chesapeake and Ohio Canal Company was understood and insisted on by Maryland. It is in the following words:

"*Resolved by the General Assembly of Maryland*, That the charter granted to the Chesapeake and Ohio Canal Company, was not intended to interfere with private property, except for the purpose of perfecting the navigation. That by conferring upon that company the right to sell or dispose of the surplus water of their canal, where wastes or sluices were absolutely essential to the security of their canal, it was only intended to give to the said company the availment of such *waste* or surplus water, as unavoidably gained admission; and that so far as the present company are let into the rights and possessions of the Potomac company, they are bound to take these rights, subject to the obligations and restrictions imposed upon that company."

Again and again, at the last and at the present session, notwithstanding this full and continued flow of public opinion, the same memorial is submitted to the Legislature of Maryland. To have collated, these the acts and proceedings of our predecessors, might have sufficed, but in the hope that an end may be put to this vexed question, your committee has thought proper also to shew their own opinion, which is:—

First, That the Legislature cannot rightfully grant the request of the Chesapeake and Ohio Canal Company, because the whole soil of the Potomac river, above tide, and the right to the use of its waters, is private property, qualified only by the right to use it as a public highway.

Secondly, That were the soil, and the water flowing over it, public property, it would be inexpedient to grant the privilege asked.

In support of the first proposition the committee will gladly avail itself of the authority afforded by the decision of Chancellor Bland, in a case decided by him, not long since, the case before referred to, of Amos Binney, against the Chesapeake and Ohio Canal company. In the 35th

manuscript page of that able opinion, we find the following language:—"Compared with these gliding streams (the Thames and the Severn) the Potomac is a torrent; collecting its waters far west, from the rude mountain and the mossy wild, and swelling occasionally from fifteen to thirty feet, it comes tumbling down through rocks, abrupt, at all seasons, with a speed, and in some places, with a headlong pitch, that holds in utter defiance every thing like navigation; except it may be in a few short and calm spaces. The documents, surveys, and plats, submitted in this case, exhibit the character of this view, in these respects, in a very striking point of view, I therefore cannot think that it ever was regarded as a *navigable river*, through any portion of it above tide, either by Maryland or Virginia."—Again, on the 36th page, the Chancellor declares that, "Taking this then to be a private river, not navigable, it follows, that the riparian holders of land would have an undoubted right to use the water in any manner without injury to others;" and adds—"this right is expressly recognized by the act of 1784, ch. 33, sect. 11 and 13. But even supposing this to be a navigable river, and a highway, still the riparian holder of land would have a right to the use of its waters, with only one additional restriction; and that is, that he should not hinder or injure the navigation, Vattell, book 1, sect. 249, 272."—And again: page 39.—"Hence, I feel perfectly satisfied, that the Potomac, above the tide, is a private unnavigable river, &c." "and consequently that its waters, above tide, may be taken and used by any riparian holder of land, in any manner whatever, without prejudice to others."

Your committee thinks it important to observe that the word *navigable*, has a general and a restricted sense. That in common language any stream, whereon boats may pass and repass, may be called *navigable*, but such is not the legal acceptation of the term—a river may be thus navigable and may even be a public highway, without destroying the common law right of the riparian proprietors. It is laid down in Angel's treatise on tide waters (pages 61 and 62,) a book of authority, in which is compiled all the law upon the subject, that "no part of the law is more clearly settled than that to determine whether or not a river is navigable, regard must be had to the ebbing and flowing of the tide. For those streams of water which are of public use for inland navigation, *above* the line to which the tide ordinarily flows, are strictly not navigeable, though they are *public*

highways, for the purposes of transportation; and nuisances and obstructions therein may be punished by indictment *in the latter, it will be observed, the bed and shores of the river are the exclusive property of the owners of the adjoining banks;* but in the former, that is in rivers subject to the flux and reflux of tide, the soil thereof is the property of the sovereign and subject to the public use. The line of demarcation between the navigable river, and the public highway, or in other words between the public and private right to the soil, being established by the tide at high water." He adds, "the foregoing distinction which has never been controverted in England, has been recognised in many cases in this country, viz: 2 Conn. Rep. 481, 10 Johns 236, 3 Caines 307, 17 Johns 195, 20 Johns 90."

It may then safely be admitted that the Potomac river is navigable in ordinary phraseology, that it is a public highway, and the obstruction of it punishable at common law, as well as by act of Assembly; still the common right of the riparian proprietors subsists, qualified only by the public right of way. It is well known that where land is taken by the public for a turnpike or other road, although quoad hoc it is taken, the right of soil remains, and when the public use ceases, the owner recovers his full original dominion over it. So then with regard to a river and a highway above tide. The proprietor of the river bank has always a right to every use of the soil and of the water, so that he obstruct not nor injure it as a *highway*. And when it shall be abandoned as a highway, he may use it without that restriction.

The Chesapeake and Ohio Canal Company by authority of the States of Maryland and Virginia is constructing a canal which will entirely do away the use of the river as a highway; these States have authorised them to *divert* and use so much of the waters of the Potomac and its tributaries as may be necessary for that purpose. That permission went the full length of the States' authority.—The surplus or residue of the water is most manifestly the private estate of the owners of the shores.

The second proposition of the Committee will be found to rest on grounds equally secure. These are—First, that the navigation can not be benefitted, but must be measurably injured by every drain from the canal.

2nd.—That the water power now in use, is with the existing improvements, of immense value; and very largely more than adequate to all the wants of the country laved by the

Chesapeake and Ohio Canal; the owners of which would be greatly and unnecessarily injured by the sudden establisbment of numerous rivals.

Third—that it is not expedient that the milling and manufacturing interests of Maryland should be sacrificed, her property and her population drawn off, to make of Georgetown another Rochester, and to swell the dividends of the Chesapeake and Ohio Canal Company.

A few considerations will suffice to render the first of these positions plain to the humblest faculties. Discussing (page 46) in the case of Binney against the Chesapeake and Ohio Canal company, the thirteenth section of the charter of the old Potomac company (1784, chap. 33,) the learned Chancellor of Maryland has made the following apposite and valuable remarks:—"The first condition upon which an application of water may be made to mills as well as to navigation is the consent of the proprietors.—But supposing that to be given, still there are other conditions of the most grave importance which must all be complied with before any water can be taken from these canals for mills. The company are empowered and directed to to do so, if it can be conveniently done to answer both purposes. This allows to them an extent of discretion which cannot be duly appreciated, without adverting to *the consequences of making a navigable canal tributary to* mills, as their head race."

"The application of water, as the propelling power of mills, requires that it should flow in currents, no matter how rapid, so it does not inundate the position of the mill; but the *perfection of a navigable canal is, that the water should be entirely motionless.* The one use requires quick motion, the other *stillness.* Hence the unlimited application of the same volume of water; or rather the having water conducted along a cavity to answer both purposes, is absolutely and directly incompatible."

It is easy to understand that the whole volume of water, in a canal of any given dimensions, might be drawn off so as utterly to destroy the navigation. It is also plain that *no* obstruction of water from a canal can be made, without in *some measure* quickening the current. An unrestricted right to sell water would constantly place the company under temptation to prejudice the navigation. It is believed that the Canal Commissioners of New York have made an indiscreet use of the states authority in the sale of water privileges; and that it is found, too late, that the profit

arising from such sales is but a poor recompnse for the enhanced difficulty of the ascending navigation. Upon the whole, far from thinking it expedient, in this aspect, to grant the power prayed for, it is matter of regret that the privilege of *selling* waste water, restricted as it is, was granted at all to the Chesapeake and Ohio Canal Company. But for that, wastes would certainly never have been established, except at places where they were essential to the security of the canal. For health, they can never be required, on a canal having so great a lockage, and expected to be the thoroughfare of so large a commerce, as the Chesapeake and Ohio Canal.

In regard to the number and value of existing mills and manufactories, in the counties bordering upon the canal, your committee is not possessed of exact information. In Washington county, it is stated and believed, that the number is not less than from seventy to eighty, and in Frederick, one hundred and thirty or forty. In the four counties, Allegany, Washington, Frederick, and Montgomery, two millions of dollars would probably be a low estimate of the value of that species of property, not to mention a large number of convenient but unimproved sites. Competition already exists to a degree threatning disadvantage to all the various interests of the community. What valuable purpose, then, could be answered by the establishment of a long chain of new mills along the line of the canal, and at its termination in the District of Columbia.

Can a paternal Government contemplate with satisfaction an operation which must inevitably prostrate the hopes and fortunes of a large class of useful and industrious citizens? Was their ruin necessary for the public security, their devotion could not but excite commiseration. Were it likely to contribute to the general growth and prosperity of the State, the probabilities must be glowing indeed, to justify so wide an infliction of evil. But it cannot be right for the State deeply to injure her own citizens to gratify the unreasonable requests of those having no higher claims to favour than the Chesapeake and Ohio Canal Company.

Respectfully submitted,

WM. D. MERRICK, Chairman.

By order,

THOS. KARNEY, Jr. Clerk.

RESOLUTIONS

SUBMITTED BY THE COMMITTEE, AND REFERRED TO IN THEIR REPORT.

Resolved by the General Assembly of Maryland, That the Governor be, and he is hereby authorized and empowered to appoint some suitable and competent person to examine whether on the fifth day of July next, one hundred miles of the Chesapeake and Ohio Canal, with the adequate locks and incidental improvements, be completed, and in fit order for navigation; and if the same shall not then be found so completed, the Governor shall cause notice thereof to be given to the Attorney General, whose duty it shall be, thereupon, to institute the proper process, in order that the charter of the Chesapeake and Ohio Canal company may be adjudged and declared to be null and void.

Resolved, That the Governor be, and he is hereby authorized and empowered to appoint some suitable person to examine into, and collect testimony, whereby it may be ascertained whether there have been any infractions of their charter, on the part of the Chesapeake and Ohio Canal company—and that such person be empowered, if the facts disclosed be such as to vitiate the charter, to co-operate with the Attorney General, in bringing the same for adjudication, forthwith, before the proper tribunals.

Resolved, That upon the institution of process, under and by virtue of both or either of the foregoing resolutions, and notice thereof to him, the Treasurer of the Western Shore be, and he is hereby directed to withhold payment of the residue of the money remaining unpaid on account of the State's subscription to the stock of the Chesapeake and Ohio Canal company.

Resolved, That if on or before the first day of April next, the Chesapeake and Ohio Canal company shall, by its solemn corporate act, certify to the Governor its consent that the Baltimore and Ohio Rail Road company shall construct their road from the Point of Rocks to Harper's Ferry, upon the land side of their Canal, and thence across the said Canal to the State of Virginia, upon the following terms and conditions, to wit:

1st. That the Rail Road company shall be allowed to hold and occupy fifteen feet of the breadth of the Canal as

at present located, on the land side thereof, at all the narrow and difficult passes at and between the Point of Rocks and Harper's Ferry, not exceeding altogether two miles and one tenth in length.

2d. That for the purpose of obtaining suitable and proper curves for the Rail Road, the Canal, its tow-paths and walls, shall be removed further from the hill, if such removal shall be found necessary, and the Rail Road shall be allowed to pass by a viaduct across the said Canal at Harper's Ferry.

3d. That in those parts of the Canal in which its width shall be thus contracted, the partition wall shall be constructed by and at the expense of the Baltimore and Ohio Rail Road company, and also a wall on the corresponding portions of the side of the Canal next the tow-path, with a slope of one foot horizontal to four feet vertical.

4th. That should any portion of the tow-path and wall of the Canal be removed in pursuance of these articles, such removal and the reconstruction thereof shall be made by and at the expense of the Baltimore and Ohio Rail Road company.

5th. That should the Canal be finished in those places between the Point of Rocks and Harper's Ferry, at which the two works will not be in collision, but be kept out of use by the operations, neglect, or delay of the Rail Road company in excavating or graduating their Road, or by any default of the said Rail Road company, the said Baltimore and Ohio Rail Road company shall pay and make good the consequent loss to the Chesapeake and Ohio Canal company, and the amount so to be paid shall be ascertained by the amount of profit realized by the said Chesapeake and Ohio Canal company from the tolls it shall receive on articles transported through that part of the Canal during the same period in the following year.

6th. That the Rail Road company shall provide convenient crossing places over the Rail Road, so as to permit the free and uninterrupted access of persons, and produce to the Canal along the line between the Point of Rocks and Harper's Ferry.

7th. That it shall be fairly and expressly understood that the Baltimore and Ohio Rail Road company shall not, any time hereafter, occupy, or seek to occupy, the ravine of the Potomac, on the Maryland side, at any place above Harper's Ferry, while the same shall be occupied, or liable to be occupied, by the Chesapeake and Ohio Canal company.

8th. That Alfred Cruger and Jonathan Knight shall act as arbitrators, under oath or affirmation, to deal impartially, and to arrange a plan of operations conformably to the spirit of these articles, and in their judgment best calculated to prevent loss or injury to either company, and that their joint decision shall be binding and obligatory upon both Companies; and in case of the death of either of these, his place to be supplied by some person to be appointed by that Company in whose employ the person so dying now is.

9th. That in the event of a disagreement between them in any matter arising under these articles, they shall have power to appoint a discreet, competent and disinterested person as umpire, whose decision shall be final touching such matter.

Then and thereupon, all proceedings under the foregoing resolutions with a view to the abrogation of the charter of the Chesapeake and Ohio Canal company, shall be suspended, and the said Chesapeake and Ohio Canal company shall be allowed further time, that is to say, until the fourth day of July, in the year 1835, for the completion of the said hundred miles of Canal, with its appertenant works

INTERROGATORIES

Put by the Committee on Internal Improvement, of the Legislature of Maryland, to Jonathan Knight, Casper W. Weaver, Alfred Cruger, and Thomas F. Purcell.

1st. Whether the Canal, as now under contract, and in the course of construction, from the Point of Rocks to Harper's Ferry, varies from the original independent location of that work, or from the conjoint location of that work, and the Rail Road, as made by Knight and Roberts?

2d. Whether the changes, if any, that have been made, in the location of the line of Canal, between the Point of Rocks and Harper's Ferry, materially increased the difficulty of constructing a Rail Road between those Points?

3d. Whether any change of the location of the line of Canal between the above points, has taken place since the 14th March, 1832; and whether so much of that work as had been constructed or placed under contract before the 14th of March, 1832, rendered it necessary to the utility of the part previously constructed that such change should be made?

4th. Whether it is not practicable so to contract the width of the Canal at the Point of Rocks, at Miller's Narrows, and at Harper's Ferry, as to afford the necessary space for the passage of the Rail Road, with two tracks, on the side of the Canal next the hills, without materially impairing the utility of that work?

5th. What would be the probable additional expense now necessary to be incurred, to effect such a contraction of the Canal; or if the Canal cannot be sufficiently contracted, cannot the object of obtaining a passage for the Rail Road be effected by throwing the Canal at those passes further into the river, and at what probable additional cost?

6th. Where are the points, specifically, along the river, from the Point of Rocks to Harper's Ferry, at which both the works of the Rail Road and Canal, have difficulty in passing?

7th. What is the aggregate length of the difficult passes, as you suppose; and what is the length of each?

8th. Will the present location of the Canal permit, at the difficult passes, the construction of the Rail Road, at any reasonable cost, or does it amount, from excessive expense, in your opinion, to prohibition?

9th. Can the present location of the Canal be so varied, or altered, as to allow the construction of the Rail Road at a reasonable cost? If so, what would be the different modles or plans you would propose for alterations, and what would be the cost of making such alterations?

10th. Supposing the alteration of the Canal to be undertaken for the purpose of accommodating the Rail Road, with sufficient space for its structure, what length of time would probably be required for the completion of such alteration; and would it interfere to delay the use of the Canal for general porposes?

11th. Would the alterations you would propose as above in any manner damage the Canal, or interfere with its general public utility; and if so, to what extent?

12th. Were you acquainted with the conjoint location of the Baltimore and Ohio Rail Road, and the Chesapeake and Ohio Canal, made by Knight and Roberts, from the Point of Rocks to Harper's Ferry, under a commission from Chancery? And were you acquainted with the independent location of the Canal made at that time by said Roberts?—Have you the survey of such joint and independent locations, and the estimates thereof? If yea, produce them.

13th. Have you seen the location of the Canal, between the Point of Rocks and Harper's Ferry, as it is now under construction? If yea, is it the same made by Roberts, between the Point of Rocks and Harper's Ferry, alluded to in last interrogatory, as his independent location of the Canal?

14th. Does the present location of the Canal, render the task of constructing the Rail Road, along it independently, more difficult than it would have been, had the independent location of Roberts been adherred to?

15th. Was, in your opinion, the change of the independent location of the Canal, made by Roberts, called for by faults and errors in such independent location, which rendered the construction of the Canal upon it, too uncertain or dangerous to be attempted; or was it required by economy?

16th. Must not the outer wall of the Canal, according to either the present, or to Roberts' former location, protrude into the river at the difficult passes, between the Point of Rocks and Harper's Ferry, and have its foundation, under water, at ordinary stages of the stream; and is the width of the river, its depth, velocity, or other circumstances, between the Point of Rocks and Harper's Ferry, such as to make it essential or important to carry the Canal as close

as it has been carried to the hill-side in its present construction, to avoid lessening or narrowing the bed of the river?

17th. Is it, in your opinion, still practicable, without reducing the Canal so much as to effect it, to construct a Rail Road, with two tracks, along the Canal, next to the hill-side, by diminishing the width of the Canal? State clearly how this may be done, and what, if any, alterations would be required in the width or direction of the Canal?

18th. What is the width of the Canal, in the Monococy viaduct?—What is the length of the viaduct?—What the least width of the Canal, in any place where actually constructed, below the Point of Rocks, other than in the Monococy viaduct?—What the least width of the Canal, either as constructed or planned, above the Point of Rocks?—What the least inclination given to the outer wall of the Canal, where it has its foundation in the river, below or above the Point of Rocks, as actually constructed or planned, and heretofore intended to be constructed?

19th. Copy of interrogations heretofore proposed by the proxy of Virginia, at the general meeting of the Stockholders of the Canal company:

What proportion of the Canal, below the Point of Rocks, is constructed partly in the river, and how high are the walls which protect such partitions? Also, how much has it been contemplated to construct in like manner between the Point of Rocks and the Bridge at Harper's Ferry; and how high will be the walls necessary for its support? Also, how much is estimated to be constructed in part or entirely, in the river, between the Bridge at Harper's Ferry, and Cumberland, and the probable height of the protection walls?

Answers of Jonathan Knight to interogatories put by the Committee of Internal Improvement of the Legislature of Maryland, 30th January, 1833.

Answer to query 1st. The Canal now in the course of construction from the Point of Rocks to Harper's Ferry does materially vary from its conjoint location as made with a view to accommodate the Rail Road by Knight and Roberts, as well as from the independent location made by the latter.

Answor to query 2d. It is my belief that the variations or changes just referred to in the location of the Canal between the Point of Rocks and Harpers' Ferry, will materially increase the difficulty of constructing the Rail Road between those points.

Answer to query 3d. In relation to the time when these changes in the location, or any of them were made, I cannot say further than that it is understood they were made subsequently to the decision of the Court of Appeals, as to the right of way, which it is believed was early in January 1832. If by "the part previously constucted," it is meant in the query to allude to that part of the Canal below the Point of Rocks, I answer that no change at or above the Point of Rocks was rendered necessary to suit the Canal below that point, since Roberts' independent location as well as the conjoint line was made to meet the Canal below, and which at that time was excavated to within a short distance of the lower Po at of Rocks.

Answer to query 5th. It is elieved to be practicable to contract the width of the Canal at the narrow passes mentioned in the query, so as to afford the necessary space for the passage of the Rail Road with two sets of tracks on the side of the Canal next the hills, without materially impairing the utility of that work; and that for the following reasons: It was stated to me by the Canal Engineer that the least width of the Canal at the top water line in these narrow passes is to be 50 feet according to the plan of the work now in the course of construction. The necessary width for two sets of rail-way tracks is 20 feet.—The Canal will be constructed at locks and aqueducts so as not to permit two boats of a width of 15 feet each to pass each other; if therefore, though for a few hundred feet or even yards at these rocky passes the Canal should be contracted in width so as barely to permit the boats to pass

each other, it would still be better for navigation there than at some other places already existing and which were narrowed through motives of economy in the construction. Now as the Lock is 15 feet wide in the chamber, of course no boat of greater width than15 feet can navigate the Canal, and consequently 30 feet would allow one boat to pass another. With this width for the Canal, there would remain the 20 feet for the Rail Road without either removing the exterior wall and tow-path further into the river,or excavating further into the rocks than is now being done; unless, indeed, at one or two places, for short distances, it should be necessary to do the one or the other, or both of these things in order to obtain a curvature for the Rail Road that would be admissible. It is probable however, that the Canal might have a width of 35 *feet* in the most difficult pass, and yet accommodate the Rail Road, since this could be accomplished by cutting down the rocks vertically so as to gain 5 feet from the slope which is believed to be fully as great as 1 horizontal to 4 vertical; and this excavation would furnish materials for the construction of the partition wall, which, for economy of space, should be built nearly vertical. If it should still be considered an object further to enlarge the cross section of the water in the Canal without moving the exterior wall and tow-path, this object could be attained to some extent by walling the side of the Canal next the tow path, so as to allow the slope to be 1 to 4.— Then both walls having a slope of 1 to 4, the top breadth of water being 35 feet and depth 6 feet, the width at bottom would be 32 feet, and the area of the cross section 201 square feet, being still about 50 per cent. greater than the cross sections of the canals of N. York, Pennsylvania and Ohio which are 40 feet wide and 4 feet deep, with a cross section of 136 square feet. When I consider the great amount of business done upon some of these Canals having these smaller dimensions, I cannot view a partial contraction of *this Canal* at a few difficult passes, so as to reduce its cross section even to that of the Erie Canal, much less to an area 50 per cent. greater than the Erie Canal, as materially, if at all, imparing its utility.

Answer to query 5th. If the mode of construction pointed out in the foregoing answer should be adopted, and if it should be found necessary to extend it at the points of collision to the distance designated by Knight and Roberts in their surveys for conjoint construction, viz: 2 miles in the whole, between the Point of Rocks and Harper's Ferry; and

and if the partition wall should average 10 feet in heighth, 2½ feet thick at top, and 5 feet at bottom (having a batter next the Canal of 1 to 4,) there would be required about 16,000 perches of masonry in the 2 miles for the partition wall, costing probably, $20,000. The filling back of the wall for the rail-way, would probably cost $10,000 in addition, making together $30,000; but if the whole width of the canal should be first excavated, it might enhance the entire cost in the 2 miles to $35,000. It would greatly add to the expense, in the present state of the work, to throw the canal further into the river, and I am not prepared to submit a conjecture as to the amount which this mode of gaining width would *now* involve.'

Answer to query 6th. "The points specifically along the river from the Point of Rock to Harper's Ferry at which both the works of Rail Road and Canal have difficulty in passing," are 1. The lower Point of Rocks. 2. The upper Point of Rocks. 3. Miller's Narrows, and 4. Harper's Ferry Narrows, as designated in the maps of the surveys of Knight and Roberts before referred to.

Answer to query 7th. The aggregate length of these difficult passes in which the independent locations of the two works came in the direct collision, as measured on the Rail Road line in the surveys of Knight and Roberts, was 11,134 feet, equal to 2 miles and 574 feet; viz: In the surveys, maps and estimates of Knight and Roberts, as follows:—

	Feet.
Lower Point of Rocks—From station No. 1, to 53 feet after No. 35 (Rail Road line.)	3,427
Upper Point of Rocks—From station No. 78, to No. 109.	3,107
Miller's Narrows—From station No. 545 to No. 580.	3,500
Harper's Ferry Narrows—From station No. 639 to No. 650.	1,100
Total feet,	11,134

The extent of collision would now be increased at and near all those narrow passes in consequence of subsequent change in the location of the canal; nevertheless it is believed that the distance for which the canal would require contraction to 35 feet in width would be considerably less at the respective narrow passes than the lengths above mentioned.

Answer to query 8th. It is believed that the pre-occupancy of the before mentioned difficult passes by the canal would render it impossible, afterwards to construct the Rail Road along side of it at any reasonable cost, and consequently that such a construction under such circumstances, would involve expenses and difficulties so excessive as to amount to a prohibition.

Answer to question 9*th*.—A simultaneous construction of both the Rail Road and Canal, however, at these passes; is entirely practicable, and that within a reasonable amount of expense, and without impairing in any material degree, the utility of the Canal, as shown in my answer to the 4th query, in which I have proposed a plan for that purpose, and which appears to me the most feasible and least expensive of any, and to which I now respectfully refer as my answer to this interrogatory.

Answer to question 10*th*.—In answer to this query, I would state as my opinion, that by adopting the plan just alluded to, and laid down in my answer to the 4th query, no material loss of time in the construction, or in the use of the Canal for navigation, could take place, inasmuch as the present contractors could continue the necessary rock and other excavations, and erect the partition walls, &c., simultaneously with the execution of the works now in progress. It would require an increase in the number of hands to carry on the work rather than cause any delay in the time of finishing the Canal.

It would be understood as a matter of course, that the Rail Road Company should lay the rails at such time after the graduation should be prepared, and in such manner as that company should think proper.

Answer to question 11*th*.—It is not perceived that the plan I have proposed in my answer to the 4th query would damage the Canal, or interfere with its general public utility.

Answer to question 12*th*—I was joined with N. S. Roberts in the commission from chancery, and with him made the conjoint locations of the Chesapeake and Ohio Canal, and the Baltimore and Ohio Rail Road, through the narrow passes, and places contiguous to them, from the Point of Rocks to a point opposite to Harper's Ferry: at the same time, and immediately antecedent to the making of the conjoint locations of the two works, we made separate and independent locations of them; Roberts of the canal, and myself of the rail road; each without any regard to the

other work. Roberts at that time completed his independent location of the canal through the entire distance from the Point of Rocks to Harper's Ferry. Experimental lines for the rail road were at the same time run by me through the whole distance, and actual locations made throughout the extent only where direct or indirect collision or interference occurred. I am, therefore, well acquainted with the independent location of the canal as made by Roberts from the Point of Rocks to Harper's Ferry, and likewise with the conjoint locations made by us with a view to a conjoint construction of the two works at, and in the vicinity of, the narrow passes. We made triplicate reports upon this service, accompanied with maps, profiles, and estimates both of the independent and conjoint locations, so far as the contemplated extent of the latter; viz: One copy for the Chancellor, and one for each company. The copy belonging to the rail road company is now in my possession, and is at the service of the committee.

Answer to question 13*th*.—I have seen the entire length of the canal as it is now under construction between the Point of Rocks and Harper's Ferry, and find the location through most of the distance, materially to differ both horizontally and vertically, from the independent location as made by Roberts.

Answer to question 14*th*.—The changes that have been made in the location of the canal since the independent location of Roberts, would certainly enhance the cost of an independent construction of the rail road by compelling a location of the latter to be made upon gruond less feasible than could otherwise have been chosen, whiist at the same time the curvatures will be more unfavourable.

In the location of Roberts, he had placed a lock just above Millers Narrows, and the next one on Casper W. Weaver's land; the next lock was placed below Berlin and a short distance above the Little Cotoctin creek, and then a lock at Poplar branch just above the upper point of rocks. Whereas, in the subsequent location, and as the canal is now laid, the lock above Miller's Narrows is brought down about 1½ miles to Weaver's mill; the lock which had been located on Weaver's farm, by Roberts, has been transferred to Berlin; the one below Berlin, to near Poplar branch; and that at Poplar branch, to the entrance of the narrows at the lower point of rocks, where, for the first time below Harper's Ferry, the location was depressed to the level of Robert's independent line, and on that level it is

continued down through these Narrows. The consequence of this elevation, equal to the height of a lock, through the distance of 11½ out of the 12 miles, it will be perceived, has been to swing the line along most of the route further from the river and nearer to the hills—commencing at the lower Point of Rocks, at station No. 5, of the conjoint lines; the space between the excavation for the Canal on Roberts' independent location, and the first large cliff some 200 feet eastward from the Point of Rocks, was about 21 feet;—Whereas, *now* the excavation extends quite to the base of that cliff; thus indicating a change in the line here of 21 feet horizontally towards the mountain. This change is calculated to increase the difficulties of constructing the Rail Road, and it may also render it difficult, on account of the consequent increase of curvature, to get round the point so near at hand. The grade of the Rail Road will likewise be here increased on account of the near approach of the lock which is now placed just at the upper termination of the narrow pass. From thence for 3½ miles to little Cotoctin creek, the present location of the Canal is very nearly throughout on the line run for the Rail Road; the straight lines of Roberts in places, and especially in Mc' Gill's and Hook's bottom lands, being exchanged for curved lines lying up nearer to the hills, and rendering the passage of the Rail Road much more expensive and curved, than it would have been in either the conjoint or independent locations. Similar changes have been made above Berlin, and especially through Wever's lands, and by Miller's Narrows, as well as at Harper's Ferry Narrows:—So that, independent of what has been styled *the narrow passes*, there will be about 4 miles of the distance that will be rendered, perhaps, $7,500 per mile, or in the whole, $30,000 more costly in the graduation and masonry of the Rail Road than it would have been if the Canal had been made upon Roberts' independent line.

Answer to question 15th.—I am unacquainted with any sufficient reasons for the changes in the location just referred to.

Answer to question 16th.—The foundation of considerable portions of the protection walls of the Canal at the four narrow passes enumerated, were to have been, according to the independent location of Roberts, and now are, under water, in ordinary stages of the stream. At the lower and upper points of Rocks, and likewise at Miller's Narrows, the Potomac, from its great width of nearly half a mile, and its shallowness, being not more than 2, 3, 4, or at

most 6 feet deep, at common low water, where such a wall would have to be founded, and from its firm bed, mostly of rock, is considered highly favorable to the erection and maintainance of protection walls in canalling. No hesitation, therefore, existed in the comparison of opinions of Roberts and myself, as to the entire feasibility of encroaching upon the river so far as (with the requisite breadth and quantity of rock excavation) to permit both the Canal and Rail Road to pass through those narrows; and we made our locations, estimates, and reports, accordingly.—Harper's Ferry Narrows, are less favorable, but no doubt is entertained of the permanency of a protection wall if constructed there. No danger need be apprehended from the exceedingly small contraction of the breadth of the river, or increase in depth and velocity of the water to arise from the occupancy of any breadth sufficient for the works in question.

Answer to question 17th.—This query is answered, it is believed, in my reply to the 4th.

Answer to question 18th and 19th.—I am not in possession of the necessary facts to enable me to answer the 18th and 19th interrogatories.

J. KNIGHT.

January 30th, 1833.

STATE OF MARYLAND,

FREDERICK COUNTY, Sc.

January 30th, 1833.

To the truth of the matters and things stated in the foregoing answers, J. Knight, solemnly affirmed, this day, in presence of

WM. D. MERRICK, Chn.

Answer of Casper W. Weaver to interrogatories put to him by the Committee of Internal Improvements, of the Legislature of Maryland, 30th January, 1833.

To the interrogatories propounded to me, at the instance of the committee on Internal Improvement, I can only answer, summarily, as I am unacquainted with many of the facts which they are calculated to elicit.

I am not acquainted with any other part of the independent location, made by Nathan S. Roberts, of the Chesapeake and Ohio Canal, than that passing through my lands. My lands lie immediately below Miller's narrows. The location there has been materially varied, so much so, that for a considerable portion of its distance, it has been transferred from the river side of the bottom land to the hill side—say from about two to about four hundred feet. Against this change, I several times remonstrated, to Mr. Cruger, as one highly injurious to me, but in vain. His reasons, as given to me, for making the change, were not satisfactory. I was then, and still am, under full conviction, that the canal could have been constructed at as little cost on Mr. Robert's line, as upon that adopted, and if the damages sustained by me were taken into consideration, at less cost. This change renders the construction of a rail road along side of the canal at the west end of my land and for several hundred feet there, more difficult and expensive, and will most probably force it to encounter more exceptionable curvature. Indeed the canal and rail road will now be in collision, where each had ample space before.

I have examined nearly the whole line of the canal now under construction from the Point of Rocks to Harper's Ferry. That the rail road may still be constructed along side of the canal, and without impairing its utility materially, I have no doubt. As Mr. Knight's answer to the 4th interrogatory expresses my views, precisely, on this subject, by contracting and otherwise modifying the present structure of the canal, I only deem it necessary to refer to it, as part of my answer. Unless the canal be contracted or otherwise modified, I would consider the difficulty and expense of constructing a rail road, along side of it, through the narow passes, so great, as to amount to an impracticability. But if the canal be contracted, and some other modifications, which might be necessary to accommodate the curvature of a rail road,

be made, then the practicability at what may be regarded a reasonable expense, of constructing a rail road along side of it, will be established. Nor is it necessary that the construction of both the canal and rail road along the narrow passes should require, more time, than will be requisite for the formation of the canal alone, as more labourers may be employed.

CASPER W. WEAVER.

28th January, 1833.

STATE OF MARYLAND,

FREDERICK COUNTY, sc.

On this 30th day of January 1833, personally appeared Casper W. Weaver, and made oath that the matters and things stated in the foregoing answers to interrogatories put to him by the committee on Internal Improvements of the Legislature of Maryland, contain the truth, the whole truth, and nothing but the truth, to the best of his knowledge and belief.

Test,

WM. D. MERRICK, Ch'n.

Answers of Alfred Cruger to the interrogatories submitted by the Committee of Internal Improvement of the State of Maryland, 30th January 1833.

Answer to the 1*st interrogatory.* The Canal now under contract varies from the original and independent location of that work as much and not more than two locations of the same work on the same ground made by different Engineers vary from each other, under ordinary circumstances; it varies as much from the conjoint location as a judicious and economical position of the Canal would dictate and no more.

Answer to the 2*d interrogatory.* The changes which have necessarily taken place in the line of Canal, have not materially increased the difficulty of constructing a Rail Road on its margin. At the two "Points of Rocks" the position of the centre line remains nearly if not quite the same; certainly not differing more than 5 or 6 feet to the right or left; there are certain governing points which effectually check any important deviation from a course which must be apparent, not only to a professional man but to a casual observer, to be the one combining the great desiderata, economy and security. At Millers Narrows and from that pass up to Harper's Ferry the present position of the line of Canal is outside of or further removed from the face of the rocks than either the conjoint or independent location of the Canal, consequently affording greater facilities for the construction of a Rail Road; between the difficult passes the ground is generally bottom land or ground falling with a gentle inclination towards to the Potomac, the present location is sometimes to the right or the left of the independent location, but from the natural formation of the surface of the ground cannot materially affect the passage of a Rail Road.

Answer to the 3*d interrogatory.* This interrogatory will be premised in the answer by the observation, that the final adjustment of the precise position of the centre line of the Canal, does not always take place until the work is far advanced in its construction and that sometimes the line is changed even after the construction has been commenced upon the part altered. There has not been a month since the construction was commenced last spring, during which, some portion of the line has not been changed. During the month of May or June, the location below the bridge at Harper's Ferry was changed and thrown considerably fur-

ther into the River. The answer will therefore be that changes have taken place in the location since the 14th March 1832, but not entirely for the reasons suggested in the enquiry, that these changes were necessary to the utility of the part previously constructed, but that the particular local circumstances demanded them and they had no reference to the period mentioned in the interrogatory.

Answer to the 4th interrogatory.—The Canal Company have, below the Point of Rocks along the difficult passes to tide water, been at a heavy expense in blasting and removing large bodies of solid rock to attain the width they deem essential to the purposes for which they are constructing the Canal, and the width of the Canal cannot be so contracted as to afford a passage for a Rail Road with two tracks for the necessary distances to pass the difficult points, without materially imparing the utility of the Canal, by the impediments which would necessarily be placed in its navigation.

Answer to the 5th interrogatory.—Without going into a calculation (which time to procure the accurate data prevents) a sufficiently accurate answer can be presented from the knowledge possessed of circumstances. The increased cost of effecting the object by a contraction of the Canal at these passes would probably be from $30 to 40,000 upon a supposition that the Canal were finished. The object would certainly be accomplished by placing the Canal further into the river, or in the position in which it was placed in the conjoint location, but the present advanced condition of the works would render this very costly, almost as much so as the original construction; certainly ⅔ as much.

Answer to the 6th interrogatory.—These points are two Points of Rocks, Miller's Narrows and the pass immediately below Harpers Ferry.

Answer to the 7th interrogatory.—The aggregate length of the difficult passes is 2 miles and 1 tenth. The length of the lower Point of Rocks 3,427 feet—that of the upper Point of Rocks 3,107 feet—that of Miller's Narrows 3,500 feet and that below Harper's Ferry 1,100 feet.

Answer to the 8th interrogatory.—I should consider that the construction of the Rail Road, at the difficult passes along the side of the Canal, on its present location, was impracticable, that is to say within the limit of a cost which would be justified by the end, or in other words that the excessive expense amounts to a prohibition.

Answer to the 9th interrogatory.—The construction of the Canal has advanced too near its completion to admit of any change in its position, unless by diminishing its breadth, without incurring a very heavy cost, probably $75,000.

Answer to the 10th interrogatory—If the alteration of the position of the Canal were attempted for the purpose of permitting the construction of the Rail Road on its margin, the time which would probably be required, beyond that now required to complete it, could not be less than 4 to 6 months, during which time the entire distance of Canal from the head of the Harper's Ferry Falls, to Senaca, would be useless, and the Canal Company deprived of the benefits arising from its navigation for that length of time.

Answers to the 11th interrogatory.—As the Canal, in the above supposed alteration, is presumed to retain its full width, its utility to the public so far as its navigation is concerned, would suffer no detriment; but in the facility of approaching it for loading or unloading, and in its general accessibility for the purposes of receiving or depositing produce or merchandize, it would be much impeded. The Canal would also be less secure from danger or the hazzard of breaches, which would further tend to impair its general utility, and the prolongation of the time necessary to repair these casualities in consequence of the proximity of the Rail Road, would also have the same tendency. The effect that the Rail Road would have upon its revenue, by subtracting from its tonage, thereby diminishing the probability of its entire completion according to the original design, as well as the effect that this circumstance will have upon its public utility, I leave with the committee, well assured that this view can be taken more clearly by themselves.

Answer to the 12th Interrogatory.—I was frequently on the ground in question, during the progress of the examination under the commission from the Court of Chancery; I am familiar with the principal features and general circumstances connected with the survey, and am acquainted with both the independent and conjoint location. I have not in my possession either the surveys or estimates of that location, but have frequently and very lately seen them.

Answer to the 13th Interrogatory.—I have seen the Canal under construction from the Point of Rocks to Harper's Ferry, as it now is, for it has been so far executed under my orders and in conformity with my direction. It is not alto-

gether the same as that made by Mr. Roberts, between those points.

Answer to the 14*th Interrogatory.*—The present location of the Canal, compared with that of Roberts', increases the difficulty of constructing the Rail Road by its side in some places, and diminishes it at others. At the Point of Rocks, the difficulties are about equal on either; at the passes above, the facilities are greater on the former. I should suppose, that on a full consideration of the subject, that no greater amount of difficulty is offered by the present location of the canal, to the passage of the Rail Road, than that by Mr. Roberts.

Answer to the 15*th interrogatory.*—The plan and location of the Canal from the Point of Rocks to Harper's Ferry, upon which the present construction is progressing, was made without any distinct reference to the location of Mr. Roberts, when acting as commissioner with Mr. Knight.—As I have bofore observed, no two engineers think precisely alike in collecting the data upon which they base their opinions for preferring one location to another; the main difference of the present location of the Canal, and that of the independent location of Mr. Roberts, lies in the position of the locks. In differing with Mr. Roberts, I was supported in the propriety of the step by the unanimous advice of those, with whom I consulted, who, with myself, thought it more economical and secure in the construction of the Canal, to place the locks lower on the line of Canal, in which course I was consistent with myself in the location which I had made in 1828 and '29, for I then placed the locks, nearly where they at present stand. No faults or errors are attributed to Mr. Roberts; but a difference of opinion has existed, and as an unlimited authority was vested in me to locate the Canal to the best of my judgment. I have exercised it; the error may lie in the present location, if there be one; though I have seen no cause to regret the alteration. The location made by Mr. Roberts, was seldom referred to; the most economical, consistent with a secure canal, was the sole and unmingled object of the labors of the engineers.

Answer to the 16*th interrogatory.*—The base of the protection wall in both cases of the present and former location, must rest in the running water of the river, and have its foundation under water at ordinary stages of the river—neither the depth nor velocity of the current, nor a wish to avoid diminishing or narrowing the width of

the river, were altogether the reasons for placing the canal where it now is; it had its effect among other considerations, but the governing object and the one we sought most laboriously to gain, was to place the canal, while all other circumstances were equal, in the position which would admit of the most econmical construction.

Answer to the 17*th interrogatory.*—I would refer to my previous answers to the 4th and 8th interrogatories, as furnishing a proper answer to this interrogatory.

Answer to the 18*th interrogatory.*—The width of the Monococy Aqueduct is 20 feet; its length, 512 feet.—There is no place in the canal below the point of rocks where the width is less than 50 feet. The least width of the canal as constructed or planned between the Point of Rocks and Harper's Ferry is 50 feet. This occurs where there are rocky points and difficult passes; the one side of the canal is then generally made perpendicular, by which means the same water section is preserved. The least inclination given to a wall on the out side of the canal bank is 3 inches to the foot latteral, though the majority of the walls slopes with an inclination of one to two, at an angle of 45.

Answer to the 19*th interrogatory.*—I have not at present the means of answering what proportion of the canal below the Point of Rocks is constructed partly in the water, but several miles are constructed in this situation. The walls vary in perpendicular height, from 15 to 60 feet. It has been contemplated to construct in like manner between the Point of Rocks and Harper's Ferry, about 2 miles, and the walls will vary from 15 to 20 feet in height. I am not aware from personal examination, of the extent of canal, similarly situated between Harper's Ferry and Cumberland, but have heard and seen it estimated at 40 or 45; the walling will probably range from 15 to 30 feet in height.

STATE OF MARYLAND,
Frederick County, sc.

On this 30th day of January, 1833, personally appeared Alfred Cruger, and made oath that the matters and things stated in the foregoing answers to interrogatories, put to him by the committee on Internal Improvements, of the Legislatute of Maryland, contain the truth, the whole truth, and nothing but the truth, to the best of his knowledge and belief.

Test,
WM. D. MERRICK, Ch'n.

Answer to Interrogatories propounded by the Committee of Internal Improvement of the Legislature of the State of Maryland, to Thomas F. Purcell, Engineer of the Chesapeake and Ohio Canal Company, 30th January, 1833.

Answer to the 1st interrogatory.—The location of the Canal between the Point of Rocks and Harper's Ferry, on which it is now being constructed, varies from both, the independent location of Roberts, and the conjoint location of Roberts and Knight.

Answer to the 2d interrogatory.—I think they do not.

Answer to the 3d interrogatory.—All the changes and modifications of the Canal line, made by Mr. Cruger and myself, when formed into a Board, for the purpose of locating the Canal from the Point of Rocks to Williamsport, were grounded solely on consideration of utility and economy. Whether any change has been made since the 14th of March, is unknown to me.

Answer to the 4th interrogatory.—This interrogatory is vague inasmuch as it does not state the amount of contraction actually needed; but if 20 feet, (the amount stated by the agents of the Rail Road Company, to be requisite) is subtracted from the breadth of the Canal, the width remaining would admit the passage of only one boat at a time; thus exposing the Canal boats to the delays incident to their lengthy and narrow passes; and consequently its utility very materially impaired.

Answer to the 5th interrogatory.—An answer to this interrogatory involves the necessity of surveys and estimates; but either plan would involve a heavy expenditure.

Answer to the 6th interrogatory.—The difficult passes are, the Lower Point of Rocks, the Upper Point of Rocks, Miller's Narrows, and Harper's Ferry Narrows.

Answer to the 7th interrogatory.—The aggregate length of the difficult passes is two and $\frac{1}{10}$ miles—that at the Lower Point of Rocks is 3,427 feet—Upper Point of Rocks is 3,107 feet—Miller's Narrows, is 3,500 feet—and Harper's Ferry Narrows, is 1,100 feet.

Answer to the 8th interrogatory.—An independent construction of the Rail Road will not be more expensive now, as the Canal is located, than it would have been an independent construction of the same work, along the independent location of the Canal, as made by Mr. S. Roberts; and the sum required for the independent construction (see re-

port of Knight and Roberts) was not so great, in my judgment, as to amount to a prohibition of the Rail Road.

Answer to the 9th interrogatory.—The Canal cannot now be removed so as to give room for a Rail Road, without incurring nearly, if not quite as much, expense to the Canal, as would be incurred by the excavation, for an independent construction of the Rail Road.

Answer to the 10th interrogatory.—The time required to effect an alteration in the location of the Canal, would depend on the extent of the change, and the vigour with which the work was prosecuted, but supposing the alteration to extend to a removal of the Canal, for the entire breadth of the Rail Road, and that the work is urged as rapidly as is consistent with prudent economy, the time occupied would probably not be less then eight or nine months; it would, of course, delay and interfere with the operations of the Canal; to have a force of men daily engaged in blasting rock from the adjacent cliffments amount to a prohibition of all navigation on the Canal for the time it continued.

Answer to the 11th interrogatory.—The Canal, as now constructing, has been planned, and is executing, as a whole; any derangement of its parts must necessarily injure it to some extent; we believe the Canal to be placed on the most eligible ground, and to remove it farther into the river, must unquestionably expose the work to a greater hazard, as well from the water of the river, as that confined within the Canal.

Answer to the 12th interrogatory.—I am acquainted with the different surveys and locations mentioned; they were referred to and used by me in the location of the Canal in February and March last; they were then deposited in the Company's office, at the city of Washington, where they may be found.

Answer to the 13th interrogatory.—I have seen the location of the Canal referred to, as it is now established; it varies from the independent location of Roberts.

Answer to the 14th interrogatory. The variations from the line run by Mr. Roberts, were produced by assuming at each of the difficult passes, except the Lower Point of Rocks, a higher level, or greater elevation above the surface of the river; this necessarily operated to reduce the quantity of rock at each bold and perpendicular cliff, because there was a less height from the bottom of the Canal to the top of the rock, and for the same reason there will be less rock to excavate, for any road that may be placed in those cliffs.

On sloping ground it is immaterial what level is assumed; there being a choice of cutting, consequently, there can be but little difference of expense between any two lines.—From these considerations, I certainly do not think it more difficult or expensive to construct the Rail Road now, than it would have been, had the independent location of Roberts been adherred to.

Answer to the 15*th interrogatory.*—The determination to change the independent location of Roberts was made after a full examination of the subject, and originated in considerations of security to the work and economy of construction. There had been several locations for the Canal, along this ground, made at different times, and by different persons; as, the United States Engineers, Geddes and Roberts, Mr. Cruger in 1828, and subsequently by Mr. Roberts. The present location approximates to those made by Geddes and Roberts, and that by Mr. Cruger. At Miller's Narrows, and at the Upper Point of Rocks, I am of opinion that if the Canal had been permitted to remain as established by the independent location of Roberts, the high floods of the river would have overtoped the banks of the Canal. Without, therefore, intending to impute error to Mr. Roberts, I feel satisfied that the present location of the Canal is better calculated to ensure safety and economy.

Answer to the 16*th interrogatory.*—The outer wall of the Canal, at the difficult passes, would, on any location, protrude into the river. The present position of the Canal, and its banks, is essential to a combination of security and economy.

Answer to the 17*th interrogatory.*—This is replied to in my answer to the 4th interrogatory.

Answer to the 18*th interrogatory.*—The dimensions of the Monocacy Aquaduct, are unknown to me; and the least inclination of any wall on the Canal, is 3 inches base to the foot rise.

Answer to the 19*th interrogatory.*—I do not possess the means of replying to this interrogatory.

STATE OF MARYLAND,
FREDERICK COUNTY, Sc.

On this 30th day of January, 1833, personally appeared Thomas F. Purcell, Engineer of the Chesapeake and Ohio Canal Company, and made oath, that the matter and things stated in the foregoing answers to interrogatories put to

him by the Committee on Internal Improvements of the Legislature of Maryland, contain the truth, the whole truth, and nothing but the truth, to the best of his knowledge and belief. Test:—

WM. D. MERRICK, Ch'm.